ACCES I/O PRODUCTS, INC.

Acquisition Control Communication Engineering / Systems

Embedded I/O Products & Integrated Systems

THE SOURCE FOR ALL YOUR I/O NEEDS.

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2006 Product Catalog

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ACCES I/O PRODUCTS, INC.

ACQUISITION CONTROL COMMUNICATION ENGINEERING/SYSTEMS

About ACCES I/O Products

Since its founding in 1987, San Diego, California-based ACCES I/O Products, Inc. has emerged as a true market leader in analog, digital, serial communication, and isolated I/O solutions. ACCES I/O also offers complete systems, integration services and enclosures. ACCES I/O's leadership in its target markets is the result of technical innovation, breadth of product line, and the indisputable price/performance value that ACCES I/O offers users in solving their real-world industrial/scientific/military data acquisition and control needs.

Sorrento Valley, San Diego

Our Products

ACCES offers one of the industry's widest selection of data acquisition products, with hundreds of standard, off the shelf products to choose from. These products include signal conditioning, analog and digital I/O, RS-232/422/485 serial communications, isolated input / relay output, and watchdog timer cards, which feature specific, practical functionality. ACCES products are designed for use with PC/104, PCI, PCI-X, Low Profile PCI, EBX, ETX, EPIC, USB, Ethernet and ISA, as well as distributed and wireless I/O. All products ship with a complete software CD providing drivers, source code, setup programs, and samples.

New I/O Technology

ACCES has been a leader in the introduction of new technology such as Low Profile PCI, USB, ETX and Wireless for the I/O market. ACCES was the first I/O vendor with a Low Profile PCI analog input card. Our Low Profile PCI line now ranges from isolated relay digital cards to eight port RS-232/422/485 cards that can be used in 2U rack mount industrial servers. Our innovative USB I/O line recently introduced the OEM concept of USB/104 where the PCB size and mounting holes match the PC/104 form factor. This allows our USB I/O products to serve both the mobile and embedded markets. ACCES became the first exclusive I/O manufacturer to offer ETX I/O baseboards using our large library of hardware designs and software drivers. This provides embedded OEM customers a semi-custom solution instead of what would formerly have been an expensive custom I/O solution. Our wireless I/O line provides the first rugged, practical solution for using wireless in remote and harsh locations.

RoHS

ACCES I/O is committed to providing our customers quality products that comply with RoHS (2002/95/EC) and WEEE (2002/96/EC) to meet the lead-free European Union green initiatives. ACCES is dedicated to meeting the increasing demands for environmentally compatible products through this initiative, while meeting technical requirements and high quality standards. ACCES will be RoHS compliant for all its new products and many of its existing products starting the beginning of Q3 2006.

Our People

ACCES is staffed by experienced engineering and technical sales professionals whose decades of cumulative embedded I/O expertise have led to innovative and reliable products. Its loyal, forward thinking employees continuously anticipate, identify and meet the needs of internal and external customers. Engineers and buyers at ACCES work closely with a variety of component vendors to ensure long product life-cycle in all ACCES products. Design, prototype assembly, testing, software engineering, and new product support are all completed in-house. ACCES is extremely proud of its experienced Sales and Technical staff which makes sure to offer support before and after all sales. Customer support, service, and satisfaction is a priority for all ACCES employees.

PC/104 I/O BOARDS & ACCESSORIES

- Analog I/O & Multifunction - Up to 16 Channels, 100-500kHZ, Arbitrary Waveform Generator
- Analog Multiplexers - 32 Channels of Current Loop, T/C, RTD, Other Transducer Inputs
- Digital I/O - 24/48/96 Lines with Change of State (COS) Detection
- Isolated Digital/Relay Output - 16/24/32 Channels; 4/8/16 Relay Outputs, COS
- Serial Communications - 2/4/8 Ports; Isolated & Non-Isolated
- DC/DC Power Modules - 12/24/48V; Single/Multiple Outputs
- Accessories - Screw Terminal Boards, Ribbon Cables, Snaptrack, and more

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INTEGRATED PC/104 EMBEDDED DATA ACQUISITION SYSTEMS

- IE-DAS - Intelligent Embedded Data Acquisition System - EBX, EPIC, PC/104 CPU Compatibility; 20GB Hard Drive, 4 Expansion Slots, Scalable & Flexible I/O Interfacing, Convection-Cooled Steel Enclosure, 115VAC Power Supply Included
- E4-DAS - Rugged, Easy to Use, Ethernet Enabled, Environmentally Adaptable Data Acquisition System; Conduction Cooled, PC/104 & PC/104-Plus CPUs up to 1GHz; Up to 6 PC/104 or PC/104-Plus Expansion Slots

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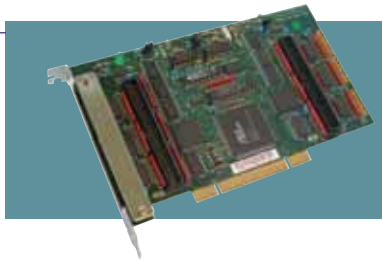
PCI BUS I/O CARDS

- Analog/Digital - Up to 16-Channels, 100-500kHZ, 12/16-Bit A/D Converters, Selection of Digital I/O
- Digital/Analog - 2/4/6/8/16 Double-Buffered 12-Bit D/A Converters, 16/24 Digital I/O
- Digital I/O - 8/16/24/48/72/96/120-Channel Parallel; COS Detection, Isolation, Relay and Solid-State Outputs
- Serial Communications Cards - Multi-Protocol, Multi-Port RS-232/-422/-485, Low-Profile Universal PCI; 1/2/4/8 Ports
- Watchdog Utility Cards - Timer, Computer Power & Temperature Monitors, Fan Speed Control, and other options



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USB I/O MODULES

- Analog Output Board - 8 channels, 1000kHz, 256K onboard FIFO
- Digital I/O Boards-32 - Bits Parallel Digital I/O, Rugged Enclosure with/without Screw Terminal Connector
- Isolated Digital/Relay Output - 4/8/16 Isolated Inputs; 4/8/16 Relay Outputs with 2 RS-232/422/485 serial ports
- Counter/Timer Board - Fifteen independent 16-bit counter / timers (5 x 82C54-10)
- USB Adapters - Up to 4-Ports, USB to RS-232/-422/-485

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REMOTE ACCES™ DISTRIBUTED & WIRELESS I/O

- Digital I/O Pods - 24-Bit Parallel Digital I/O, 54 Digital Inputs Allowing up to 50V Signal Levels, Several Enclosure Options
- Analog Input Pods - Wide Variety of Multiplexed Transducer Inputs, Up to 16-Channels, 12-Bit A/D with Differential or Single-Ended Inputs
- Analog Output Pods - 8 D/A Converters, 7 Digital I/O Ports; Low & High Power Output Models
- Connection Options - Wireless Transceivers, Ethernet, USB-to-Serial Converters, Cabling, Power Supplies

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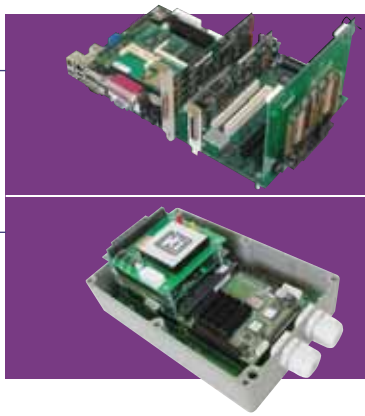
CUSTOM DESIGN CAPABILITIES

Full range of custom design and integration services from prototype through production. Development, documentation, sourcing and procurement, assembly, software, and thorough testing provide a high-quality solution you can count on.

ACCESSORIES

- Wireless Communications Interfaces - Variety of Wireless Modem Transceivers for Remote ACCES Pods, including 900MHz, 2.4GHz, Dipole Antenna, RS-232/-422/-485
- Utility Boards to Pair to Digital I/O Boards
- Adapters, Connectors & Cabling - Screw Terminals, Variety of Pin Count Connectors, Ribbon, SCSI, Snaptrack, and more



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ANALOG

16-Bit Analog and Digital I/O

104-AI016-16W
104-AI016-16E
(Economy version)

- 500kHz sampling rate
- 16 single-ended or 8 differential inputs
- 11 software/hardware selectable ranges of: 0-1V, 0-2V, 0-4V, 0-5V, 0-10V, ±0.5V, ±1V, ±2V, ±2.5V, ±5V, ±10V
- 1024 sample data FIFO for A/D
- Auto calibration
- Two 12-bit D/A outputs and 16 digital I/O
- Unique software progammable gain channel by channel
- Factory options include extended temperature, FIFO up to 64K sample, programmable amplifier with gains of 1, 10, 100 and 1000, +5VDC only operation, and an economy version

ANALOG

12-Bit Analog and Digital I/O

104-AI012-8
104-AI12-8 (No Outputs)
104-AO12-4 (No Inputs)

- Eight single-ended or true differential inputs
- Programmable input ranges of: 0-5V, 0-10V, ±5V, ±10V
- 100kHz sampling rate
- On-board pacer clock and counter timers
- Four double-buffered analog outputs
- Jumper selectable output ranges of: 0-5V, 0-10V, ±5V, ±10V
- 24 digital I/O lines, type 82C55 with change-of-state detect on port C, buffers on ports A & B
- Factory options include 4-20mA inputs with offset, channel by channel pre-amplifier gains of 1-100, +5VDC only operation, and extended temperature

ANALOG

32-Channel Analog Input Signal Conditioner

104-AIM-32
104-AIM-32A
(Includes A/D board)

- Designed to pair with an A/D board to increase channel count and signal conditioning capabilities
- 6 software programmable ranges: ±25mV, ±50mV, ±0.1V, ±2.5V, ±5V, ±10V
- Up to 8 104-AIM-32s can be stacked per A/D board for up to 256 S.E. or 128 diff. inputs
- +5VDC only operation
- Precision 15VDC sensor excitation
- Input signal conditioning options include 4-20mA inputs with offset, RTD measurement, thermocouple measurement, voltage divider on each input, RC filters on each input, bridge completion configuration, and thermocouple break detect

ANALOG

12-Bit Analog Output Board with Arbitrary Waveform Generation

104-DA12-8A
104-DA12-8

- Broadly configurable arbitrary waveform generator (ARB)
- DACs independently programmable with unique waveforms
- 128K SRAM for ARB data storage
- Independent 12-bit D/A converter per channel
- DACs independently or simultaneously updated
- Output ranges of 0-5, 0-10, +/-5, +/-10V
- Voltage outputs on separate pins per channel and 4-20mA
- 32-bit counter for precisely timed outputs
- 16-bit counter for IRQ generation
- Available in 4 and 8 channels, with or without the ARB

DIGITAL

USB/104 Digital Input/Output Module

USB-DIO-32 OEM

- High-Speed USB 2.0 device, USB 1.1 compatible
- 32-channel USB digital I/O module
- PC/104 module size and mounting compatibility
- Four 8-bit ports independently selectable for inputs or outputs
- All 32 I/O lines buffered with Sink 64mA / Source 32mA current capabilities
- High-speed API (no HID!)
- Standard 50-pin IDC connector with key

Factory Options

- Up to three 82C54 counter/timers
- Rugged industrial enclosure
- Screw-terminal adaptor for easy wiring

■ DIGITAL

PC/104-Plus 96 Channel High-Speed Digital I/O

P104-DIO-96

- PC/104-Plus (PCI-104 optional)
- 96 channel TTL-DTL high speed digital I/O
- Software selectable in vs. out as 8 bit and 4 bit ports
- Emulates 4 industry standard 8255 PPIs (mode 0)
- Full 32-bit PCI interface design
- Buffered circuits for higher driving capacity
- Low CPU overhead
- Known power-up states
- Output port status read back
- Standard 50-pin IDC connectors (x4)
- 0 to 70°C and -40 to +85°C versions available

■ DIGITAL

48 or 24 Digital I/O with Change of State (COS) Detection

104-DIO-48S (E)
104-DIO-24S (E)

- 48 or 24 parallel lines of 82C55 digital I/O with tristate buffers
- IRQ on input change of state (COS) eliminates the need for constant polling
- High sink/source current (64mA/32mA)
- I/O pulled up to 5V for contact monitoring
- Compatible with industry standard I/O racks
- Factory Options include 82C54 with three 16-bit counter/timers for event counting, frequency output, pulse width and frequency measurement, extended temperature, economy version without COS feature (E), pull-down resistors on I/O lines, and vertical I/O connector pins

■ DIGITAL

32 or 16 Channel Isolated Input/Relay Output with COS

104-IIRO-16 (E)
104-IIRO-8 (E)
104-II-16
104-RO-16

- 16 or 8 optically-isolated, non-polarized CMOS compatible digital inputs accept ±31VDC or AC rms
- IRQ on input change of state (COS) eliminates the need for constant polling
- Slow/fast filter to accommodate AC voltages and noisy DC inputs
- 16 or 8 long-life Form C electromechanical relays switch up to 1A each
- Model 104-IIRO-8 also includes 8 non-isolated TTL compatible inputs
- Factory options include economy version without COS feature (E), extended temperature, input only and relay only versions, and expanded input voltage levels

■ DIGITAL

36-Channel Isolated Input/Relay Output with COS

104-II32-4RO

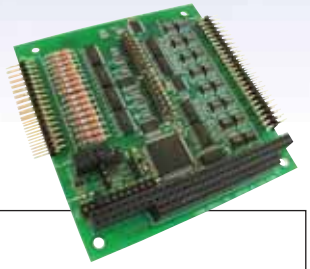
- 32 optically-isolated, non-polarized digital inputs
- Change of State (COS) detection selectable on nybble basis
- 3 to 31 volt AC or DC signals
- Switchable filters and schmitt trigger buffers
- 4 Form C (NC, NO, C) SPDT relay outputs
- Contact ratings 24VDC @ 1A and 115VAC @ 0.5A
- +5V power with onboard resettable fuse for external circuits

■ DIGITAL

USB/104 16 Isolated Input and 16 Relay Output Digital I/O Module

USB-IIRO-16 OEM Series

- High-Speed USB 2.0 device, USB 1.1 compatible
- 16 optically isolated inputs
- 16 Form C electromechanical 1 Amp relays
- High-speed API (no HID!)
- PC/104 module size and mounting compatibility
- Factory options include input only and relay only versions, eight and four I/O versions, removable screw terminal board for easy wiring, and a small (4" x 4"x 1.25") rugged industrial enclosure



■ DIGITAL

32 or 16 Channel Optically-Isolated Digital I/O with COS

104-IDIO-16 (E)
104-IDIO-8 (E)
104-IDO-16
104-IDO-8

- 16 or 8 optically-isolated, non-polarized CMOS compatible digital inputs accept ±31VDC or AC rms
- IRQ on input change of state (COS) eliminates the need for constant polling
- Slow/fast filter to accommodate AC voltages and noisy DC inputs
- 16 or 8 optically-isolated fully protected high-current solid state outputs
- Factory options include extended temperature, economy version without COS feature (E), input only and output only versions, expanded input voltage levels

■ SERIAL

PC/104-Plus 8 Port RS-232 Serial Communication

P104-COM232-8

- PC/104-Plus (PCI-104 optional)
- 8 independent asynchronous RS-232 serial COM ports
- High performance octal UART, 16550 compatible register set
- Speeds up to 460.8K, full duplex
- Data transfer in byte, word, and doubleword size
- 64-byte transmit and receive FIFOs per UART
- Sixteen-bit counter/timer for IRQ generation

■ SERIAL

2 Port Isolated and Non-Isolated RS-422/485 Serial Communication

104-ICOM-2S
104-COM-2S

- 2 independent optically-isolated asynchronous serial COM ports
- Field selectable RS-422 and RS-485, independent for each port
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Fixed bias and jumper selectable termination provided on each transmit and receive channel simplifies cabling
- Speeds up to 115.2K
- Factory options include 16850 UART with 128-byte FIFO, speeds up to 460.8K, extended temperature, non-isolated version available

■ SERIAL

8, 4, or 2 Port RS 232/422/485 Serial Communication

104-COM-8SM Series

- 8, 4, or 2 independent asynchronous serial COM ports
- Field selectable RS-232, RS-422 and RS-485, independent for each port
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Speeds up to 921.6K
- Fixed bias and jumper selectable termination provided on each transmit and receive channel simplifies cabling
- Programmable non-volatile base addresses and IRQs simplify installation
- Factory options include extended temperature, 16850 UARTs with 128-byte FIFO, RS-232 and RS-422/485 only versions available

■ DIGITAL

Counter/Timer Module

USB-CTR-15 OEM

- High-speed USB 2.0 device, USB 1.1 compatible
- Fifteen independent 16-bit counter / timers (5 x 82C54-10)
- PC/104 module size and mounting compatibility
- Clock, gate, and out signals from all 15 channels buffered and accessed via 1 connector
- Standard configuration adaptor pre-configured for event counting, frequency measurement, pulse width measurement, or frequency generation
- User wiring adaptor card provided for flexible yet easy counter concatenation
- Power provided via USB cable (no AC needed)
- Factory options include rugged industrial enclosure and screw terminal board

DIGITAL

8 or 4 Channel Quadrature Encoder Input Board

104-QUAD-8
104-QUAD-4

- 4 or 8 channels of quadrature encoder inputs and channel index inputs
- Counts outputs from eight quadrature encoders
- Three differential channels per encoder, including dual axis and index
- Input ranges: ±25V and ±7V common mode
- 4.3MHz maximum clock rate
- Individual software reset for each channel
- Standard counting and alarm functions
- Programmable for counting, speed, and direction; limit setting with interrupts
- Factory flexible interrupt options

	ANALOG INPUTS								ANALOG OUTPUTS					MISC	
Products	#Inputs	Res	BIP RG	UniRG	Gain	Speed	Autocal	FIFO	#Outputs	Res	BIP RG	Uni RG	4-20mA	#Dig I/O	XT
104-AIO16-16W	16 SE, 8 DIF	16	2	2	Jumper	500kHZ	Yes	1024*	2	12	2			16 I/O	Yes
104-AIO16-16E	16 SE, 8 DIF	16	2	2	Jumper	250kHZ	Yes	2K**	2	12	2			16 I/O	Yes
104-AIO12-8	8 SE, 8 DIF	12	2	2	Program	100kHZ			4	12	2	2		24 I/O	Yes
104-AI12-8	8 SE, 8 DIF	12	2	2	Program	100kHZ								24 I/O	Yes
104-AO12-4									4	12	2	2		24 I/O	Yes
104-DA12-8A									8	12	2	2	Yes		Yes
104-DA12-8									8	12	2	2	Yes		Yes

RES = resolution BIP RG = bipolar ranges UNI RG = unipolar ranges AUTOCAL = autocalibration XT = extended temperature option
*optional FIFO up to 64K **optional FIFO up to 32K

	DIGITAL I/O							
Products	#I/O	Buf	Prog	OPTOs	Relays	CTRS	COS	XT
104-DIO-24S	24 I/O	Yes	Yes			UP to 3	Yes	Yes
104-DIO-24E	24 I/O	Yes	Yes			UP to 3		Yes
104-DIO-48S	48 I/O	Yes	Yes			UP to 3	Yes	Yes
104-DIO-48E	48 I/O	Yes	Yes			UP to 3		Yes
P104-DIO-96	96 I/O	Yes	Yes				Yes	Yes
104-IIRO-8	8 In/8 Out	Yes		Yes	8		Yes	Yes
104-IIRO-8E	8 In/8 Out	Yes		Yes	8			Yes
104-IIRO-16	16 In/16 Out	Yes		Yes	16		Yes	Yes
104-IIRO-16E	16 In/16 Out	Yes		Yes	16			Yes
104-II32-4RO	32 In/4 Out	Yes		Yes	4		Yes	Yes
104-II-16	16 In	Yes		Yes			Yes	Yes
104-RO-16	16 Out	Yes			16			Yes
104-IDIO-16	16 In/16 Out	Yes		Yes	16SS*		Yes	Yes
104-IDIO-16E	16 In/16 Out	Yes		Yes	16SS*			Yes
104-IDIO-8	8 In/8 Out	Yes		Yes	8SS*		Yes	Yes
104-IDIO-8E	8 In/8 Out	Yes		Yes	16SS*			Yes
104-IDO-16	16 Out	Yes			16SS*		Yes	Yes
104-IDO-8	8 Out	Yes			8SS*			Yes

BUF = buffered I/O PROG = programmable I/O COS = change of state detection XT = extended temperature option *Solid State

	SERIAL PORTS						OPTIONS	
Products	RS-232	RS-422	RS-485	Baud	PROT CFG	ADDR CFG	LRG FIFO	XT
104-COM232-2	2			230.4K		Jumper	Yes	Yes
104-COM232-4	4			230.4K		Jumper	Yes	Yes
104-COM232-8	8			230.4K		Jumper	Yes	Yes
P104-COM232-8	8			460.8K		Software	Yes	Yes
104-COM-2S		2	2	115.2K	Jumper	Jumper	Yes	Yes
104-ICOM-2S*		2	2	115.2K	Jumper	Jumper	Yes	Yes
104-COM-2SM	2	2	2	921.6K	Jumper	Jumper	Yes	Yes
104-COM-4S		4	4	921.6K	Jumper	Jumper	Yes	Yes
104-COM-4SM	4	4	4	921.6K	Jumper	Jumper	Yes	Yes
104-COM-8S		8	8	921.6K	Jumper	Jumper	Yes	Yes
104-COM-8SM	8	8	8	921.6K	Jumper	Jumper	Yes	Yes

PROT CFG = protocol configuration *optically isolated XT = extended temperature option

RUGGED, INTEGRATED PC/104 EMBE

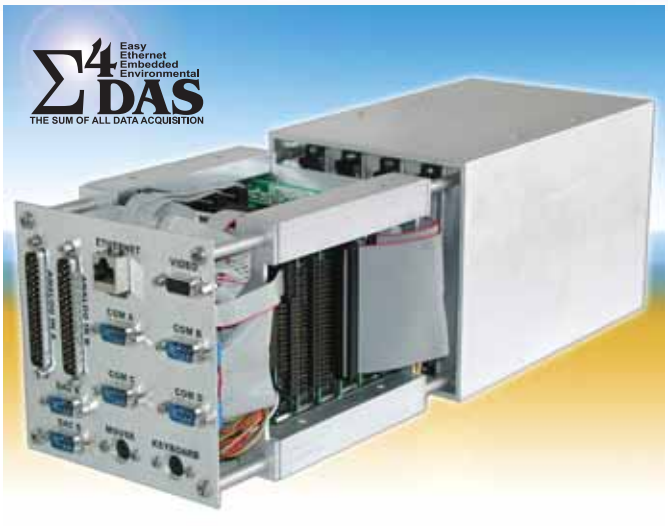
EMBEDD

- Military/Defense
- Avionics/Aerospace
- Communications/Networking

■ Easy to use, Ethernet-enabled, Embedded and Environmentally adaptable PC/104-based Data Acquisition System

A line of rugged, conduction cooled, integrated PC/104 embedded DAQ systems. Designed for embedded applications requiring superior performance and a high degree of protection from damaging vibration and shock environments commonly encountered in military and defense, avionics, communications, process control, automation and other real-world applications.

E4-DAS



Features

- Easily removable railed card cage subassembly
- Ethernet enabled data transfers for simplified cabling
- Embedded, high-performance fanless operation and conduction cooling
- PC/104 and PC/104-Plus processors up to 1GHz can be integrated, even at extended temperatures
- Accepts from two to six PC/104 or PC/104-Plus boards
- Scalable and flexible I/O interfacing
- Compact size - 4 board system measures just 6.75 x 5 x 5"
- Custom configurations available-consult factory

Functional Description

- Model E4-DAS, takes its name from being an Easy to utilize, Ethernet enabled, Embedded and Environmentally adaptable PC/104-based Data Acquisition System. The latest line of systems from ACCES, the E4-DAS is designed for rugged embedded applications requiring superior performance and a high degree of protection from damaging vibration and shock environments commonly encountered in military and defense, avionics, communications, process control, automation and other real-world applications. The completely integrated E4-DAS is packaged in a lightweight aluminum enclosure with a railed card-cage subassembly for easy serviceability. Internal elastomer inserts are also provided for vibration and shock mitigation. The system's fanless design is fully conduction cooled, enabling the box itself to dissipate the heat by heat-sinking the CPU and power supply on each end of the stack. The E4-DAS can accommodate stacks of two to six PC/104 boards (including the CPU and power supply), allowing the unit to incorporate a wide range of analog and digital I/O, serial communications, relay and TTL output, wireless, Ethernet and other functions. An internal single (+5 V), or optional triple (+5, ±12 V) output DC/DC power supply is used to accept system power sources of 12, 24, or 48 V. I/O is accessed via connector cutouts on the unit's end plates.

Advanced and Custom Systems

- Every application is different, and ACCES can easily tailor a system to a user's specific needs. After listening to our customers, ACCES has developed a system design and integration team focused on the development of powerful, yet simple to use, data acquisition systems. These include extensive CPU and peripheral capabilities and the integration of a generous selection of our (or customer-specified) data acquisition, I/O, or special-function PC/104 boards. Custom development can include minor variations of standard boards and systems to completely custom interfaces and configurations. ACCES has the in-house engineering resources to design, develop, supply and support custom embedded systems at the board, software and system level. For more information please visit our System Integration and Custom Hardware Design web page.

Contact ACCES today for more information and support for designing a system which meets your precise requirements.

EDDED DATA ACQUISITION SYSTEMS

- Automotive/Transportation
- Process Control/Factory Automation
- Data Acquisition/Security

Intelligent, Embedded Data Acquisition System for PC/104 and PC/104-Plus configurations. Packaged in a rugged steel enclosure with threaded inserts for panel, DIN rail, and rack-mount installations, the fully integrated IE-DAS supports a stack of up to four PC/104 or PC/104-Plus boards plus CPU for analog and digital I/O, serial communications, relay and TTL output, wireless Ethernet options, and more.

IE-DAS

Features

- Fanless operation with convection cooling via vented enclosure sidewalls
- Supports EBX, EPIC, PC/104 and other CPUs
- External 115VAC power supply
- Compact size-9" x 7" x 4 1/2"
- Includes pre-loaded board software, utilities and tool software with a variety of drivers
- Custom configurations available-consult factory

Basic System

The basic system includes a 300MHz Pentium EBX CPU and standard peripheral ports including VGA, keyboard and mouse, dual USB ports, dual 10/100BaseT Ethernet, dual RS-232 and one RS-232/485 port.

Existing Configuration 1

Comes with standard computer peripherals, including 2 LAN ports, 2 USB ports, 3 RS-232 ports; keyboard, mouse and video available from CPU board, brought to connectors in enclosure.

Existing Configuration 2

Based on specifications of our PC/104 Multifunction Analog-to-Digital board model 104-AIO12-8. All Data Acquisition I/O is accessed by DB25 connectors.

Package includes Configuration 1, plus:

- 8 Differential Analog Inputs, 12-bit resolution for sensor or voltage monitoring
- 4 analog outputs, 12-bit resolution
- 24 lines of Digital I/O
- 3 Counter timers, 16-bit

Contact ACCES today for more information and support for designing a system which meets your precise requirements.

Existing Configuration 3

Based on specifications of our PC/104 Analog Signal Conditioner model 104-AIM-32. Package includes Configuration 2, plus:

- 23 Differential Analog Inputs, 12-bit resolution, for direct sensor or voltage monitoring (optional conditioning for RTD's, Thermocouples, 4-20mA inputs, etc.)
- 4 Analog Outputs, 12-bit Resolution
- 24 lines of Digital I/O

Existing Configuration 4

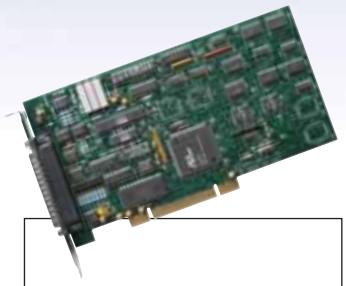
Based on specifications of our PC/104 8-Port Serial Communications Board model 104-COM-8SM. Package includes Configuration 1, plus:

- 8 additional RS-232/422/485 standard serial communication ports with 64-byte transmit/receive FIFO buffers

Existing Configuration 5

Based on specifications of our PC/104 High-Resolution, High-Speed Multifunction Analog I/O Model 104-AIO16-16W. Package includes Configuration 1, plus:

- 8 differential or 16 single-ended analog inputs with 16-bit resolution for sensor or voltage monitoring
- 16 lines of digital I/O
- 2 analog outputs, 12-bit resolution
- 3 counter timers, 16-bit

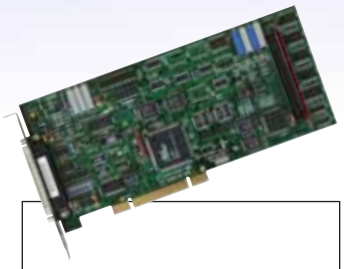


ANALOG

16-Channel, 12-Bit Analog Input Card

PCI-AI12-16A
PCI-AI12-16

- 16 single ended / 8 differential analog inputs
- 12-bit resolution, 100kHz A/D converter
- Eight programmable voltage ranges (unipolar & bipolar) and 4-20mA current range
- FIFO data and point list buffers ("A" version). Both FIFO's 2K
- On-board pacer clock and counter/timers
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Number of analog inputs can be expanded up to 256 by use of our external signal conditioners/ sub-multiplexers

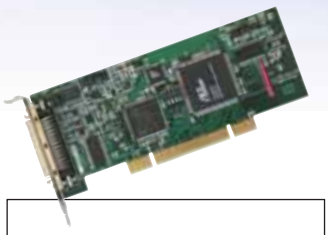


ANALOG

16-Channel, 12-Bit Analog I/O Card

PCI-A12-16A

- 16 single ended / 8 differential analog inputs
- 12-bit resolution, 100kHz A/D converter
- Two 12-bit analog outputs
- Eight programmable voltage ranges (unipolar & bipolar) and 4-20mA current range
- FIFO data and point list buffers. Both FIFOs 2K
- On-board pacer clock and counter/timers
- 24 channels of buffered TTL/CMOS digital I/O
- Universal PCI, PCI-X, 3.3V & 5V compatible

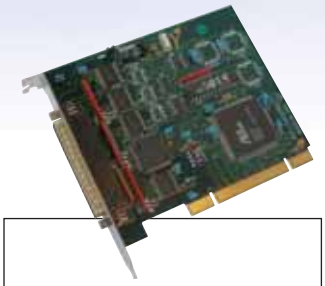


ANALOG

High-Speed, Multifunction, 16-Bit Analog I/O Board

LPCI-A16-16A

- 500kHz sampling rate
- 16 single-ended or 8 differential inputs
- Auto calibration and oversampling for accurate data
- Unique channel-by-channel programmable gain feature
- 1024 sample data FIFO for A/D (optional up to 64k samples)
- Two 12-bit D/A outputs and 16 digital I/O lines
- Software selectable synchronous, asynchronous and timed trigger modes
- 11 software/hardware selectable ranges from 0-1V to ±10V
- Meets Universal PCI and MD2 Low Profile PCI Bus Specifications



DIGITAL I/O

24 Channel Digital Input/Output Cards

PCI-DIO-24D
PCI-DIO-24H

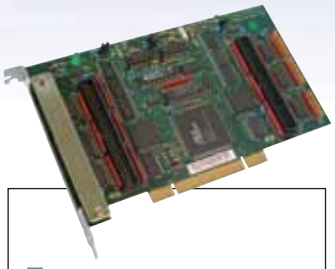
- 24 channels of buffered TTL/CMOS digital I/O
- Four and eight bit ports independently selectable for I/O
- I/O buffers can be enabled/ disabled under program control
- Pull-ups on I/O lines
- Resettable fused +5 VDC output
- Universal PCI, PCI-X, 3.3V & 5V compatible
- "H" version compatible with industry-standard I/O racks
- Up to 3 optional 1 MHz counters
- No base address or IRQ switches to set
- DB-37(-D) or 50-pin IDC (-H) connectors

ANALOG

12-Bit Analog Output Cards

PCI-DA12-2/4/6
PCI-DA12-8/16

- 2, 4, 6, 8 or 16 12-bit, double-buffered, D/A converters
- Software selectable individual or simultaneous DAC update
- Counter/timer (8/16) or external signal (2/4/6) generated DAC updates and/or IRQs
- Unique, automatic control of DAC outputs to prevent spurious outputs at power-on
- 24 (8/16) or 16 (2/4/6) channels of TTL/CMOS digital I/O buffered with tri-stateable transceivers
- Pull-ups on digital I/O lines
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Three 16-bit down counters (8/16 only)
- Resettable-fused +5VDC available for external use (+12V also available with 2/4/6 models)

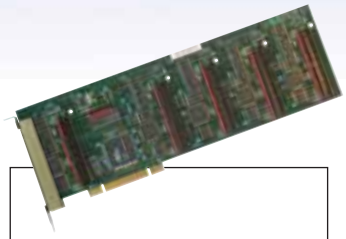


DIGITAL I/O

24 or 48 Channel Digital Input/Output Cards

PCI-DIO-48S Series

- 24 or 48 channels of TTL/CMOS digital I/O buffered by tri-stateable transceivers
- Software configurable interrupt generation on input change of state
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Four and eight bit ports independently software selectable for I/O / tri-state
- Input hysteresis and choice of pull-up or pull-down resistors on I/O lines
- Resettable-fused +5VDC available for external use
- Compatible with industry-standard I/O racks
- Factory options include a variety of connectivity options and economy models with no change of state feature



DIGITAL I/O

72, 96, or 120 Channel Digital Input/Output Cards

PCI-DIO-120 Series

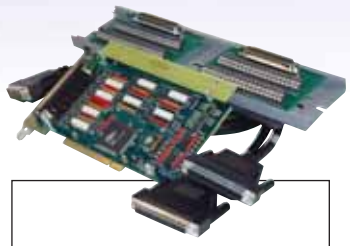
- Up to 120 channels of TTL/CMOS buffered digital I/O
- On each 24-bit port, four and eight bit groups independently selectable for input or output
- Input hysteresis and choice of pull-up or pull-down resistors on I/O lines
- Interrupt and interrupt-disable capability
- Tri-stateable I/O ports under software control
- Universal PCI, PCI-X, 3.3V & 5V compatible
- +5 V supply available to the user
- Compatible with industry standard I/O racks
- Three 82C54 counter/timers available on Model PCI-DIO-96C3
- No base address or IRQ switches to set

DIGITAL I/O

8 or 16 Channel Isolated Digital Input/Relay Output Cards

PCI-IIRO-16
PCI-IIRO-8
LPCI-IIRO-8

- Eight or sixteen optically isolated inputs AC or DC, 5-24V
- Opto-isolated channel to channel and channel to ground
- Eight or sixteen electromechanical relay outputs
- Can detect input state change and assert interrupt
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Low Profile version meets Universal PCI and MD1 Low Profile PCI Bus Specifications
- Selectable input circuit filters (10mS)



DIGITAL I/O

16 Channel Isolated Digital Input/Output Card

PCI-IDIO-16

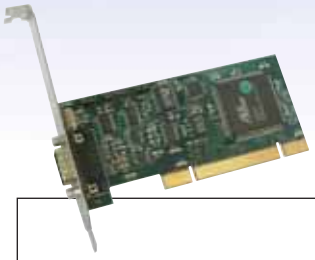
- Sixteen optically-isolated, non-polarized digital inputs
- Opto-isolated channel to channel and channel to ground
- Sixteen fully protected FET outputs
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Can detect input state change and assert interrupt
- No switches or jumpers to set, all options software selectable

DIGITAL I/O

Up to 48 Isolated Inputs or Outputs

PCI-IDI-48 Series
PCI-IDO-48 Series

- 16, 32, or 48 individually optically isolated digital inputs or solid state relay outputs
- Polarity insensitive digital inputs accept 3-31VDC or 31V AC rms
- Opto-isolated channel to channel and channel to ground
- Optional interrupt generation on input change of state
- Solid-state design permits higher throughput than possible with electromechanical relays
- Load voltages up to 60 Volts at up to 2A
- Lower cost per point than externally-racked solid-state relay modules
- Universal PCI, PCI-X, 3.3V & 5V compatible



SERIAL

Single-Port RS-422/485 Isolated and Non-Isolated Serial Communication

LPCI-COM-1S
PCI-ICM-1S

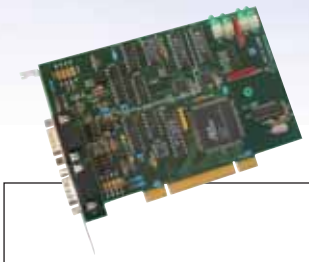
- Supports RS-422 and RS-485 protocols
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Type 16550 UART with 16-byte FIFO buffers
- Speeds up to 460.8K
- Universal PCI, PCI-X, 3.3V & 5V compatible
- PCI-ICM-1S has optical isolation
- LPCI-COM-1S meets MD1 PCI Low Profile Specification
- Detected as standard COM port by all operating systems
- No base address or IRQ switches to set
- Optional 16850 UART with 128-byte FIFO

SERIAL

Dual-Port RS-422/485 Serial Communication

PCI-ICM-2S

- Optically-isolated asynchronous serial communications
- Two independent ports each supports RS-422 or RS-485
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Type 16550 UARTs with 16-byte FIFO buffers
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Speeds up to 460.8K
- Detected as standard COM port by all operating systems
- No base address or IRQ switches to set
- Optional 16850 UART with 128-byte FIFO

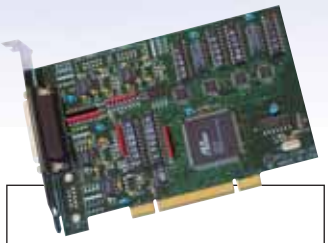


SERIAL

Dual-Port RS 232/422/485 Serial Communication Cards

PCI-COM-2S
PCI-422/485-2
PCI-COM232/2

- Supports RS-232, RS-422, and RS-485 protocols
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Type 16550 UARTs with 16-byte FIFO buffers
- Speeds up to 460.8K
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Detected as standard COM port by all operating systems
- No base address or IRQ switches to set
- Optional 16850 UART with 128-byte FIFO
- RS-232 or RS-422/485 only versions available

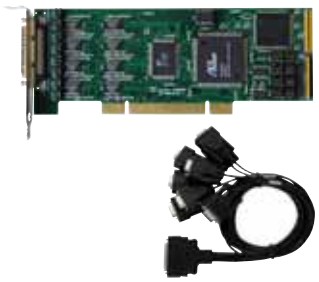


SERIAL

Four-Port Isolated and Non-Isolated Serial Communication Cards

PCI-COM422/4
PCI-COM485/4
PCI-ICM422/4
PCI-ICM485/4

- Supports RS-422 and RS-485 protocols
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Type 16550 UARTs with 16-byte FIFO buffers
- Speeds up to 460.8K
- Choice of I/O connection methods
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Detected as standard COM port by all operating systems
- No base address or IRQ switches to set
- Available with optical isolation
- Optional 16850 UART with 128-byte FIFO

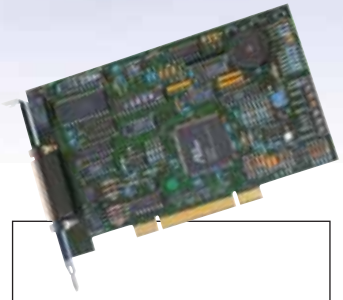


SERIAL

Low Profile, Multi-Port, Multi-Protocol Serial Communication

LPCI-COM-8SM Series

- Four or eight-port Low Profile serial communication cards
- Selectable RS-232/422/485 (2-wire and 4-wire)
- Includes a Type 16L788 UART with 64-byte read/write FIFO buffers
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Speeds up to 921.6K
- Meets MD2 Low Profile PCI Bus specification
- Detected as standard COM port by all operating systems
- No base address or IRQ switches to set
- RS-232, RS-422 or RS-485 only versions also available



WATCHDOG

Watchdog Timer Card

PCI-WDG-CSM

- Watchdog timer to detect computer malfunction
- Relay and semiconductor "reset" outputs
- Universal PCI, PCI-X, 3.3V & 5V compatible
- Easy plug-and play installation
- Computer power supply and temperature monitor
- Measurement of computer internal temperature
- Fan-failure detection and fan speed control
- Watchdog time-out buzzer and opto-isolated reset output

	ANALOG INPUTS							ANALOG OUTPUTS					DIG I/O
Products	#Inputs	Res	BIP RG	UniRG	Gain	Speed	FIFO	#Outputs	Res	BIP RG	Uni RG	4-20mA	#Dig I/O
PCI-AI12-16	16 SE, 8 DIF	12	4	4	Software	100kHz							4 prog
PCI-AI12-16A	16 SE, 8 DIF	12	4	4	Software	100kHz	2K*						4 prog
PCI-A12-16A	16 SE, 8 DIF	12	4	4	Software	100kHz	2K*	2	12	3	3		24 prog
LPCI-A16-16A***	16 SE, 8 DIF	16	6	5	Mixed	500kHz	1K**	2	12		2		16 prog
PCI-DA12-2								2	12	3	4	Yes	24 prog
PCI-DA12-4								4	12	3	4	Yes	24 prog
PCI-DA12-6								6	12	3	4	Yes	24 prog
PCI-DA12-8								8	12	3	4	Yes	24 prog
PCI-DA12-16								16	12	3	4	Yes	24 prog

RES = resolution *Has a 2k sample buffer and a 2k pointlist buffer BIP RG = bipolar ranges **Larger FIFOs available for this card
UNI RG = unipolar ranges ***Low Profile

	DIGITAL I/O						
Products	#I/O	Buf	Prog	OPTOs	Relays	CTRS	COS
PCI-DIO-24D	24 I/O	Yes	Yes			Up to 9	
PCI-DIO-24H	24 I/O	Yes	Yes			Up to 9	
PCI-DIO-24S	24 I/O	Yes	Yes				Yes
PCI-DIO-48S	48 I/O	Yes	Yes				Yes
PCI-DIO-48	48 I/O	Yes	Yes				
PCI-DIO-72	72 I/O	Yes	Yes				
PCI-DIO-96	96 I/O	Yes	Yes				
PCI-DIO-96C3	96 I/O	Yes	Yes			9	
PCI-DIO-120	120 I/O	Yes	Yes				
PCI-IIRO-8	8 In/8 Out	Yes		Yes	8		Yes
LPCI-IIRO-8**	8 In/8 Out	Yes		Yes	8		Yes
PCI-IIRO-16	16 In/16 Out	Yes		Yes	16		Yes
PCI-IDIO-16	16 In/16 Out	Yes		Yes	16SS*		Yes
PCI-IDI-48	48 In	Yes		Yes			Yes
PCI-IDO-48	48 Out	Yes		Yes	48SS*		

*Solid State **Low Profile BUF = buffered I/O PROG = programmable I/O COS=change of state detection CTRS=counter/timers

	SERIAL PORTS						OPTIONS
Products	RS-232	RS-422	RS-485	Baud	PROT CFG	LOW PROF	LRG FIFO
LPCI-COM-1S	1	1	1	460.8K	Jumper	Yes	Yes
PCI-ICM-1S*		1	1	460.8K	Jumper		Yes
PCI-422/485-2		2	2	460.8K	Jumper		Yes
PCI-ICM-2S*		2	2	460.8K	Jumper		Yes
PCI-COM-2S	2	2	2	460.8K	Jumper		Yes
PCI-COM232/2	2			921.6K	Fixed		
PCI-COM232/4	4			921.6K	Fixed		
LPCI-COM232-4	4			230.4K	Fixed	Yes	
LPCI-COM-4SM	4	4	4	921.6K	Jumper	Yes	
PCI-COM422/4		4		115.2K	Fixed		Yes
PCI-ICM422/4*		4		460.8K	Fixed		Yes
PCI-COM485/4			4	921.6K	Fixed		Yes
PCI-ICM485/4*			4	460.8K	Fixed		Yes
LPCI-COM232-8	8			230.4K	Fixed	Yes	
LPCI-COM422-8		8		921.6K	Fixed	Yes	Yes
LPCI-COM485-8			8	921.6K	Fixed	Yes	Yes
LPCI-COM-8SM	8	8	8	921.6K	Jumper	Yes	

PROT CFG = protocol configuration *optically isolated XT = extended temperature option LOW PROF=low profile form factor

USB

■ DIGITAL

USB Digital Input/Output Module

USB-DIO-32

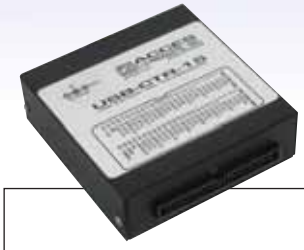
- High-speed USB 2.0 device, USB 1.1 compatible
- Small (3.5 by 3.775 in.), portable, 32-channel USB digital I/O module (PC/104 size and mounting compatibility)
- Four 8-bit ports independently selectable for inputs or outputs
- All 32 I/O lines buffered with Sink 64mA / Source 32mA current capabilities
- High-speed API (no HID!)
- Removable screw terminal adaptor for easy wiring
- Small (4" x 4"x 1.25") rugged industrial enclosure
- Standard 50-pin IDC connector with key
- Factory options include up to three 82C54 counter/timers and economy and OEM versions

■ DIGITAL

Up to 16 Isolated Inputs and 16 Relay Outputs

USB-IIRO-16 Series

- High-speed USB 2.0 device, USB 1.1 compatible
- 16 optically isolated inputs
- 16 Form C electromechanical 1 Amp relays
- Small (3.5 by 3.775 in.), portable, digital I/O module (PC/104 size and mounting compatibility)
- Internal, removable screw terminal board for easy wiring
- High-speed API (no HID!)
- Small (4" x 4"x 1.25") rugged industrial enclosure
- Eight input/output version (USB-IIRO-8) available
- Factory options include input only and relay only versions, 8 and 4 I/O versions, 2 RS-232/422/485 serial ports and an OEM (board only) version



■ DIGITAL

Counter/Timer Module

USB-CTR-15

- High-speed USB 2.0 device, USB 1.1 compatible
- Fifteen independent 16-bit counter / timers (5 x 82C54-10)
- Clock, gate, and out signals from all 15 channels buffered and accessed via 1 connector
- Small (3.5 by 3.775 in.), portable, counter/timer module (PC/104 size and mounting compatibility)
- Standard configuration adaptor pre-configured for event counting, frequency measurement, pulse width measurement, or frequency generation
- Removable screw terminal board for easy wiring
- User wiring adaptor card provided for flexible yet easy counter concatenation
- Small (4" x 4"x 1.25") rugged industrial enclosure
- OEM (board only) available

■ SERIAL

USB to Serial RS-232/422/485

USB Serial Adapters

- 1, 2, and 4-port serial communication adapters for USB 1.1 and USB 2.0 host ports
- User selectable RS-232, RS-422 or RS-485
- Four-port version includes type FT232 UART with 384-byte receive/128-byte transmit FIFO buffers
- Speeds up to 921.6K for RS-422/485 and 230.4K in RS-232 mode
- Power and individual port activity LEDs
- All required power drawn from USB port
- Compact, low profile enclosure
- Factory options include RS-232 and RS-422/485 only versions, rugged steel enclosure, and DIN rail bracket for industrial environments

■ ANALOG

8-Channel Arbitrary Waveform Generator

USB-DA12-8A
USB-DA12-8E

- 8 Independent 12-bit DACs
- USB 2.0 bulk buffered or streaming waveform output
- Point-list based update configuration allows varying output speed per channel
- Point-list features include loop, flags, and terminate control
- 128K sample buffer output at 1 Million DACs / second
- DAC slew 14% of FSV per usec
- USB Streaming at 320K
- Six per-channel ranges
- Status and control TTL signals
- Small (3.5 by 3.775") portable module (PC/104 size and mounting compatibility)
- Options include non-ARB version (E), differential outputs, ILDA compatibility, and numerous power connectivity options

REMOTE

Wireless Data Acquisition

Wireless Series

- Wireless serial data transfer to any system with a serial port
- NEMA4 enclosure for harsh atmospheric, industrial, or marine environments
- Seamlessly and transparently integrate ACCES Wireless Modem into existing interfaces
- RS-232 or RS-422/485 interface options on the Base Station Assembly
- Distances up to 7 miles with the standard dipole antenna (up to 20 with optional antenna)
- Several advanced networking options and topologies supported
- Wireless I/O solutions include analog output, analog input, digital and isolated I/O
- OEM versions available without NEMA4 enclosure

NEMA4 Remote Data Acquisition Series

- Intelligent, sensor to computer interfaces.
- Connect up to 255 pods on a two-wire RS-485 network
- NEMA 4 enclosures withstand harsh industrial and marine environments
- All products include integral microcontroller, software programmable baud rate, software upgradeable firmware, EEPROM for configuration storage, RS-485 serial operation at up to 57.6K (optical isolation available)
- Models include 12-bit, 8 channel D/A, 12-bit, 16 channel A/D, 12-bit, multifunction I/O, 24-bit Sigma Delta 2 differential input A/D with isolated digital I/O, 24 channel digital I/O, and 54 channel digital input

Rugged Remote Data Acquisition Series

- Intelligent, sensor to computer interfaces
- Connect up to 255 pods on a two-wire RS-485 network
- Rugged steel enclosure offers protection in hostile environments
- All products include integral microcontroller, software programmable baud rate, software upgradeable firmware, EEPROM for configuration storage, RS-485 serial operation at up to 57.6K (optical isolation available)
- Models include 12-bit multifunction I/O which can be used with our AIM-16 for up to 128 differential or single ended inputs and a 24 channel programmable digital I/O unit with digital input and output voltages up to 50VDC

Remote Intelligent Data Acquisition and Control Systems

RIDACS

- Remote intelligent analog and digital I/O unit with opto-isolated RS-485 multi-drop interface to host computer
- Eight-channel programmable gain, 12-bit resolution A/D converter
- Wide variety of configurations for analog, digital, and mixed configurations
- NEMA4 enclosure for harsh environments
- Data stored in RAM can be accessed at the convenience of the computer
- All communication is ASCII-based command/response protocol at rates up to 57.6Kbaud
- Industry-standard 8051 compatible microcontroller

Advanced Connectivity Options

WM-
includes wireless transceiver set

S-
Packaged for connection to RS-232

U-
Packaged for connection to a USB port

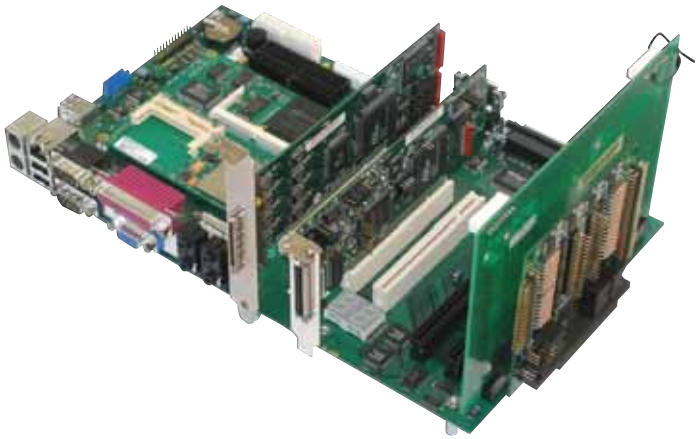
E-
Packaged for connection to an Ethernet port

CUSTOM DESIGN & SYSTEMS INTEGRATION

If you don't see exactly what you're looking for, ask about our quick-turnaround, in-house custom design and engineering capability. ACCES is fully equipped to design, develop, supply and support custom embedded systems at the board, software and system level.

Our custom software department will take your specification for any data acquisition routine, driver, or even full-fledged application, and quickly develop a solution to your satisfaction-at a competitive price. With one of the shortest times to market in the business, ACCES is proud of its tradition of delivering completed hardware and software solutions, on time and on-budget.

Our cost-effective engineering services also include expert systems integration, whether for a prototype or volume production need. Development, documentation, sourcing and procurement, assembly, software, thorough testing and support result in a high-quality system you can count on. ACCES maintains strategic alliances with various leading embedded hardware manufacturers to ensure a wide range of affordable, reliable and complete solutions.



ACCESSORIES

To increase the flexibility of our data acquisition cards, and to make them even more versatile and user-friendly, ACCES also offers a full spectrum of high-quality accessories and support equipment for your unique application, including:

- Signal conditioning, relay and solid-state I/O boards and modules
- Watchdog Timers–computer monitoring functions for PCI & ISA buses, with and without serial ports
- Screw-Terminal Accessories–large assortment of termination cards & adapters, snaptrack, etc.
- Cables for every pin on every board we sell. A wide selection of ribbon cables, serial breakout cables, along with "Y" and round-wire cables allows for a broad range of connectivity options
- PC/104 Power Supplies–ultra-wide range input models with versions accepting 12V, 24V, or 48VDC inputs with either 3A or 5A fully protected outputs on 5V lines.
- Enclosures–line includes NEMA, conduction cooled extrusions, hinged and gasketed enclosures, 1U I/O rackmount PC/104 servers, and an economy line offering simple physical protection.

ACCES I/O PRODUCTS, INC.

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